Witness CCS – 1

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of PacifiCorp for Approval of an IRP-based Avoided Cost Methodology for QF Projects Larger than Three Megawatts	:	**Docket No. 03-035-14**

REBUTTAL TESTIMONY OF

PHILIP HAYET

ON BEHALF OF
THE COMMITTEE OF CONSUMER SERVICES

September 8, 2005

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INTRODUCTION

Q. ARE YOU THE SAME PHILIP HAYET THAT FILED DIRECT TESTIMONY IN THIS DOCKET ON BEHALF OF THE COMMITTEE OF CONSUMER SERVICES?

A. Yes I am.

SUMMARY AND RECOMMENDATIONS

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. Several parties filed direct testimony with the Commission in response to the Company's request for an application for approval of a Differential Revenue Requirement ("DRR") avoided cost method for qualifying facility ("QF") projects between three and 99 megawatts ("MWs") in size. I discuss the Committee's positions regarding issues raised in various parties' testimonies.

Q. WHICH OF THE WITNESSES' TESTIMONY DO YOU ADDRESS?

A. I address issues that were introduced by Dr. Rich Collins on behalf of Wasatch Wind, LLC, Mr. Roger Swenson, who filed two pieces of testimony, one on behalf of U.S. Magnesium, LLC. and another on behalf of Pioneer Ridge, LLC., and Mr. Neal Townsend and Mr. Scott Gutting on behalf of the UAE Intervention Group. I offer no testimony to rebut any of the Division's witnesses, Dr. Artie Powell, Ms. Andrea Coon, or Dr. Abdinasir Abdulle, as the Committee's positions are generally consistent with the Division's position.

Q. PLEASE SUMMARIZE THE ISSUES YOU ADDRESS IN YOUR REBUTTAL TESTIMONY.

A. The issues I address are as follows:

1. **Attributes of an avoided cost method** – The Committee agrees with parties who believe the avoided cost method should be accurate, flexible, transparent, predictable, understandable, and easy-to-use. The DRR method satisfies these criteria better than any other avoided cost method.
2. **Conflict resolution process** – The Committee agrees with parties who believe a timely conflict resolution process is very important. However, the Committee does not believe that any additional mechanisms to resolve conflicts need to be established.
3. **Data Modeling Improvements** – In addition to the recommendations for modeling improvements that the Committee raised in its direct testimony, the Committee finds there are some data modeling issues that should also be corrected. This includes changes that would result in all CCCT units having similar data assumptions, and would incorporate wind resources in the base case.
4. **Avoided transmission capital cost payments** – Payments for avoided transmission capital costs should be made if a transmission study can demonstrate that the QF will allow PacifiCorp to avoid transmission investment costs.
5. **Avoided transmission energy losses –** Payments for avoided energy losses should be made if a transmission study can demonstrate that the QF will allow PacifiCorp to avoid transmission energy losses.
6. **Avoided capacity payments prior to 2009** – PacifiCorp's IRP 2004 indicates a need to procure up to 1200 MW of firm market purchases prior to 2009, when its next large resource is scheduled to come on-line. These firm market purchases could be avoided if PacifiCorp purchases firm QF energy. The Committee believes that some partial avoided capacity payment should be made to QFs over the 2006 – 2009 time period along the lines suggested in Mr. Townsend's testimony.
7. **20 year contract life –** The Committee opposes extending the contract length for a QF beyond 20 years. Twenty years is a reasonable length for any developer to get financing for a QF project.

8. **Wind Integration Costs** – The Committee raised an issue in its direct testimony of whether there might be a way to more accurately determine the level of wind integration costs using PacifiCorp's GRID model. PacifiCorp believes it may have a way to do this, but it appears unlikely that it will be tested in time for the hearing. The Committee recommends using $4.64/MWh for now, but the Commission should order PacifiCorp to conduct a detailed analysis of wind integration costs using GRID.

9. **Wind QF Capacity Payments** – The Committee addressed wind QF capacity payments in its direct testimony. Based on the testimony of other parties and discussions in technical conferences, the Committee amends its position. However, this only applies to wind QFs that help bring PacifiCorp's total wind capacity up to the amount that PacifiCorp's IRP 2004 determined to be economic, which is 200 MW per year and 1,400 MW total. For wind QFs that this applies to, the Company should be indifferent to paying them something similar to what the IRP determined to be the cost the Company would have to pay for wind energy. When the total amount of acquired wind capacity on PacifiCorp's system exceeds the limit, then the Committee's recommendation from its direct testimony should apply.

COMMITTEE'S DRR RECOMMENDATION

Q. HAVING REVIEWED OTHER PARTIES' DIRECT TESTIMONY, DOES THE COMMITTEE STILL BELIEVE THAT THE DRR AVOIDED COST METHOD IS SUPERIOR TO ALTERNATIVE METHODS FOR CALCULATING AVOIDED COSTS?

A. The Committee is even more convinced that the DRR method is the most accurate method for calculating avoided costs. The DRR method captures the complex interactions of the PacifiCorp system and has the flexibility to model the characteristics of any type of QF willing to supply power to PacifiCorp. We believe various parties' proxy approaches tend to overstate PacifiCorp's avoided costs and should be rejected by the Commission.

Q. PLEASE BRIEFLY REVIEW THE DRR AVOIDED ENERGY COST METHOD.

A. The DRR method requires two production cost runs to be made. In the first run PacifiCorp's system is modeled without the QF; in the second run PacifiCorp's system includes the QF as a zero cost resource. The difference in production costs between the two runs represents the maximum amount that could be paid to the QF without increasing costs to customers. Thus, the avoided energy cost rate ($/MWh) is the production cost savings divided by the energy supplied by the QF.

Q. WAS THIS THE SAME DRR METHOD THAT PACIFICORP RECOMMENDED IN ITS DIRECT TESTIMONY?

A. In essence it was, however, the Company included certain steps that the Committee recommended should be removed.

Q. PLEASE EXPLAIN THE COMMITTEE'S RECOMMENDED ADJUSTMENTS.

A. The Company added not only the QF requesting indicative pricing in the second run, but also a second QF modeled as a 525 MW zero cost, 100% capacity factor, unit. With the addition of this second unit, PacifiCorp also removed the 525 MW CCCT unit identified in its IRP 2004. The Committee found this step to be inappropriate and recommended eliminating it.

Q. WILL THE COMMITTEE'S RECOMMENDED CHANGES ADDRESS SIMILAR CONCERNS RAISED BY OTHER PARTIES IN THEIR TESTIMONIES?

A. We believe it will. As explained in the Committee's direct testimony, it is unreasonable to remove an IRP CCCT resource operating at a 38% capacity factor and replace it with a 100% capacity factor resource of the same size. This step is simply unnecessary. Adding the 100% capacity factor resource and removing the IRP unit causes problems in that a significant amount of low cost coal energy ends up being avoided, which is unrealistic.

Q. HAS THE COMMITTEE WORKED WITH THE COMPANY TO TEST THE ROBUSTNESS OF THE DRR RESULTS BASED ON THE COMMITTEE'S REVISED DRR METHOD?

A. Yes, we agreed that it would be beneficial to test the DRR results based on the Committee's recommended DRR method using a range of capacity factor assumptions. Common sense suggests that a QF with a low capacity factor (operating for just a few hours each day near the daily peak) should achieve higher avoided energy costs than a QF operating nearly every hour of each day. By examining QFs having different capacity factors, we agreed that we could determine if the revised DRR method produces reasonably expected results. PacifiCorp performed a series of analyses to test the method, and the Committee submitted DR 15.4 to PacifiCorp to obtain the results.

Q. DID THE COMMITTEE ALSO RECOMMEND AN ADDITIONAL MODELING CHANGE IN ITS DIRECT TESTIMONY THAT IT HAD NOT EVALUATED AT THE TIME?

A. Yes, the Committee recommended another adjustment in the second run, which was to reduce the size of the 2009 IRP resource by the capacity of the QF resource that had been added in the second run. This change should be implemented because the QF resource is able to displace an equivalent amount of IRP capacity that no longer has to be added to the system. PacifiCorp evaluated this adjustment as well.

Q. WHAT ANALYSES WERE PERFORMED AND WHAT AVOIDED COST ENERGY RESULTS WERE OBTAINED?

A. Four QF cases were examined, each having a different QF capacity factor assumption associated with a 99 MW QF. The table below provides the capacity factor assumption and the 20-year levelized avoided energy cost results derived from each of the four cases that were analyzed.

Capacity Factor	**PacifiCorp Revised Avoided Energy Costs ($/MWh)**
100% capacity factor	$38.42
85% capacity factor	$40.77
70% capacity factor	$43.79
High Load Hours only – 57% capacity factor	$47.37

Q. HOW DO YOU INTERPRET THESE AVOIDED ENERGY COST RESULTS?

A. The 100% capacity factor case is effectively the same as the Committee's 100% capacity factor case included in my direct testimony. In that testimony, the Committee's levelized avoided energy cost was $39.21/MWh, which is slightly higher than the $38.42/MWh obtained in this 100% capacity factor case. The difference is explained by the fact that PacifiCorp implemented the Committee's additional recommendation of reducing the size of the IRP resource in the second run by the size of the QF resource, in this case a 99 MW unit. This result appears intuitively correct because lower avoided energy costs would be expected when removing capacity from the second run.

Q. DO THE RESULTS FOR THE DIFFERENT CAPACITY FACTOR CASES APPEAR REASONABLE?

A. Yes. As a QF's capacity factor is lowered in each successive run the average avoided cost increases, as would be expected. Stated differently, the QF becomes more of a premium product when energy is provided in fewer hours that are closer to the peak, and therefore, as the capacity factor is reduced the QF provides increasingly greater value to the utility. When the QF is only dispatched during high load hours, the QF provides the greatest benefit to the utility and it receives the highest energy avoided costs of all the cases.

Q. WOULD A PROXY METHOD PRODUCE SIMILAR RESULTS?

A. No. Proxy methods typically use simplifying assumptions that result in higher avoided energy costs vis-à-vis the DRR method. As Mr. Townsend states in his testimony,

> *"Of necessity, the proxy model uses some simplifying assumptions. The results are reasonable so long as a few critical assumptions are reasonable. The most important assumption for a reasonable energy price is the expected capacity factor of the avoidable resource, the 2009 CCCT plant in this case" (Neal Townsend Direct Testimony, for UAE, Page 12, Line 17)*

Also, as Mr. Swenson states in his testimony,

> "*One shortfall of the Proxy method is that the pricing of avoided costs is most accurate if the QF and the avoided resource operate in the same manner. For example, if the Proxy resource is a CCCT and will be dispatched 45%-60% of the time, then the QF Proxy pricing approach will be extremely accurate for that 45%-60% of the time, in the dispatch hours. If the QF operates outside the dispatch hours, some other pricing mechanism must be applied to find the ratepayer indifference price, such as one that relies upon a market index."*

Because of the simplifying assumptions associated with the proxy method, both Mr. Townsend and Mr. Swenson had to find an alternative mechanism to price hours outside of the typical dispatch period of the QF resource. UAE's proxy method derives average avoided energy costs by blending the costs of a CCCT unit, for the time that the CCCT would be expected to run (57% of the hours), with the costs of market purchases from Palo Verde for the time period outside of the typical dispatch period of a CCCT unit (43% of the hours).

Q. DO YOU AGREE THAT A SIMPLE BLENDING OF CCCT AND PALO VERDE MARKET PRICES IS REASONABLE FOR USE IN COMPUTING PACIFICORP'S AVOIDED COSTS?

A. No, I do not. First, all these results assume that every QF will supply power to PacifiCorp in a pattern similar to the operation of a CCCT unit. That is an unreasonable assumption. Second, PacifiCorp operates its system using a wide range of resources, including low energy cost coal, hydro, wind and geothermal resources and higher energy cost gas-fired and purchase power resources. During certain hours, PacifiCorp's avoided energy costs would closely track the costs of CCCT resources and/or Palo Verde energy; however, in other hours, it is quite likely that PacifiCorp's avoided energy costs would be based on the lower energy costs associated with operating coal-fired generation. Calculating PacifiCorp's avoided energy costs every hour strictly on the basis of CCCT and/or Palo Verde energy costs will overstate PacifiCorp's avoided energy costs.

Q. DID MR. TOWNSEND DERIVE AVOIDED ENERGY COSTS FOR QFS HAVING DIFFERENT OPERATING CHARACTERISTICS?

A. UAE presented avoided energy cost results both in Mr. Townsend's direct testimony and in response to Committee data requests CCS 1.8, CCS 1.9, and CCS 1.10. For each of these analyses, UAE computed avoided energy costs for QFs having different capacity factor assumptions. The following table compares the results of UAE's avoided energy costs for three different capacity factor cases.

Capacity Factor	UAE Avoided Energy Costs ($/MWh)	CCCT Weighting Factor	Palo Verde Weighting Factor
100% capacity factor	$51.69	57%	43%
85% capacity factor	$51.69	57%	43%
High Load Hours only (57% capacity factor)	$53.70	100%	0%

No difference exists in the avoided energy cost of the 100% and 85% capacity factor cases because UAE used the same weighting factors for the two cases. In the 57% capacity-factor case the weighting factor was changed and the avoided energy cost increased to $53.70/MWh. Notably, there is very little difference in the avoided energy costs derived in the three cases.

Q. CAN YOU PROVIDE A SIMPLE EXAMPLE THAT DEMONSTRATES THE IMPACT OF HOW THESE COSTS MIGHT HAVE BEEN COMPUTED HAD ENERGY FROM COAL RESOURCES BEEN INCLUDED IN THE WEIGHTING?

A. Based on UAE's high load hour case (CCCT weighting factor equal to 100%) UAE's levelized avoided energy cost is $53.70/MWh.[1] For the sake of simplicity, assume that in one particular year the avoided energy cost also computes to $53.70/MWh. Using UAE's heat rate assumption for a CCCT unit (7.599 MBtu/MWh), the gas price for this year could be calculated as $7.07/MBtu (53.7 / 7.599). Had coal energy been included

[1] Based on a 20-year stream of costs and with different fuel costs in each year.

in the proxy formula, using an 85% CCCT / 15% Coal weighting assumption, then the avoided energy cost for that year would have been lower than \$53.70/MWH. For example, assume that the heat rate of a coal unit is 10.5 MBtu/MWh and its fuel cost is \$1.2/MMBtu, then the avoided energy cost of a proxy that blends costs attributable to both gas and coal resources would be approximately:

CCCT	(7.599 MBtu/MWh * \$7.07/MBtu) * .85 =	\$45.67/MWh
Coal	(10.500 MBtu/MWh * \$1.2/MBtu) *.15 =	\$1.89/MWh
	Weighted Average Avoided Energy Cost =	\$47.56/MWh

This is very close to the levelized avoided energy cost that PacifiCorp calculated using the DRR approach assuming that the QF operates during the high load hours.

Q. WHY NOT SIMPLY REVISE THE PROXY APPROACH TO BLEND IN THE PRICE OF COAL RESOURCES AS PART OF THE FORMULA?

A. The biggest problem is determining what the appropriate weighting factors should be. It is very difficult to determine whether coal costs should be weighted by 10%, 15% or some other value without using a production cost model. Therefore, the DRR method, which is predicated on production cost modeling, is the more accurate approach to compute PacifiCorp's avoided energy costs.

COMMITTEE'S POSITIONS REGARDING OTHER ISSUES

1. Attributes Of An Avoided Cost Method

Q. PLEASE DISCUSS THE KEY ATTRIBUTES THAT AN AVOIDED COST METHOD SHOULD HAVE.

A. Two of the witnesses for UAE, Mr. Neal Townsend and Mr. Scott Gutting expressed the need for an avoided cost method that is flexible, transparent, predictable, understandable and easy-to-use. Dr. Collins, on behalf of Wasatch Wind LLC. expressed a concern that developers should not have to hire experts to run the model and verify results. While the Committee realizes that the DRR method may be more complicated than a proxy approach, the advantages of using it far outweigh the disadvantages. First, the DRR method is a considerably more accurate and flexible tool for calculating avoided energy costs. Second, as parties gain experience with using the DRR method they can conduct a variety of tests that will make the model more transparent to them. The fact that PacifiCorp provides GRID to parties for free could actually help the developer save money, as some developers in other jurisdictions have had to hire consultants and pay for software license fees to analyze production cost results developed by the utility.

2. Conflict Resolution

Q. PLEASE DISCUSS THE COMMITTEE'S POSITION CONCERNING CONFLICT RESOLUTION.

A. The Committee agrees that a timely conflict resolution process is very important, not only for the QF, but also for PacifiCorp. However, the Committee does not believe that any additional mechanism to resolve conflicts is necessary. Should a conflict arise, parties already have the right to petition the Commission for a hearing to resolve the issue. The Commission has proven quite adept at holding hearings and addressing conflicts on an expedited manner such as the recent hearings held to address Spring Canyon's QF issues.

3. Data Modeling Improvements

Q. CERTAIN PARTIES PROPOSED DATA MODELING CORRECTIONS TO THE DRR METHOD. DO YOU AGREE WITH THOSE PROPOSED MODELING CORRECTIONS?

A. In addition to the Committee's recommended changes to the Company's DRR approach, both Mr. Townsend and Dr. Collins identified data modeling inconsistencies that should also be corrected. Mr. Townsend pointed out that the 2009 CCCT IRP resource is modeled with different heat rate and fuel cost assumptions compared to the Currant Creek and Lakeside CCCT units. Most likely these data inconsistencies account for the fact that some of the CCCT units appear to produce differing amounts of energy compared to other CCCT units in the Company's GRID runs. The Committee believes that the Company should revise the inconsistent data unless it can provide a reasonable explanation for the differences in data input assumptions.

Q. ARE YOU SURPRISED BY FINDING THESE SORTS OF DATA DISCREPANCIES?

A. Not at all. PacifiCorp undertook a significant modeling effort when it prepared to file testimony in this docket, including setting up a completely new GRID database that contained all of the Company's IRP 2004 modeling assumptions. The fact that some data inconsistencies may have arisen in the process of setting up a new database is not at all surprising. Furthermore, once a legitimate problem is identified, I have no reason to doubt that PacifiCorp would strive to fix it as quickly as possible. The fact that Mr. Townsend found these data inconsistencies indicates that the GRID model is not a black box as certain people in this case have suggested. It also indicates that PacifiCorp, the Division and the Committee are not the only parties capable of reviewing input data assumptions and analyzing output results in order to check for reasonableness.

Q. DID ANY OTHER PARTY NOTICE ANY OTHER DATA INCONSISTENCY THAT SHOULD BE CORRECTED?

A. Dr. Collins pointed out another problem in the database, which the Company actually discussed in Mr. Duvall's direct testimony. When the Company set up the new GRID database it included all future IRP resources except for wind resources. Mr. Duvall explained that the Company assumed that some of the IRP wind resources will be QF resources and were consequently left out of the base case. I agree with

Dr. Collins that all IRP resources need to be included in the base case, including the wind resources.

4 & 5 Avoided Transmission Capital Cost Payments & Avoided Transmission Energy Losses

Q. DO YOU BELIEVE THAT QFS SHOULD RECEIVE AVOIDED TRANSMISSION CAPACITY AND AVOIDED TRANSMISSION ENERGY LOSS PAYMENTS?

A. The Committee believes that transmission capacity and transmission energy loss payments should be considered in the avoided cost analysis. However, these transmission-related costs may be positive or negative values depending on where the QF is located on PacifiCorp's transmission system. To determine the sign and magnitude of the transmission-related costs, PacifiCorp's transmission business unit should conduct a transmission network analysis. The analysis should demonstrate whether or not the QF will cause PacifiCorp to defer transmission capital expenses, as well as avoid transmission energy losses.

The transmission business unit will have to conduct two transmission simulations; a base case without the QF and a second case with the QF. If PacifiCorp's transmission capital costs or its transmission energy losses decrease as a result of the QF locating on its system, then the QF is entitled to a transmission capacity payment and a transmission energy loss payment. However, it is also possible that PacifiCorp's transmission capital costs or its transmission energy losses may actually increase as a result of where the QF locates on the transmission system. Therefore, it may be appropriate to assess transmission capacity and transmission energy loss charges, which would effectively reduce a QFs avoided cost payments.

Q. WILL THIS RESULT IN ADDITIONAL COMPLEXITIES IN DETERMINING A QF'S TOTAL AVOIDED COSTS?

A. To a certain extent it will; however, QFs between 3 MW and 99 MW are reasonably large generating units and transmission analyses should be required for those QF units to interconnect with PacifiCorp's system.[2] The Committee believes this is a fundamentally better approach than what has been proposed by either Mr. Townsend or Dr. Collins. Mr. Townsend derives a cost of $185/kW for transmission construction costs based on assumptions from IRP 2004 and he proposes that figure be used to determine transmission capacity payments. Dr. Collins relies on information from IRP 2003 and he proposes that a $100/kW transmission construction cost estimate be used to determine transmission capacity payments. The Committee suspects that both of these estimates might overstate PacifiCorp's actual avoided transmission capacity costs. Therefore, the Committee recommends that the Commission order PacifiCorp to conduct transmission network studies to more accurately determine the magnitude of the transmission capital costs and the transmission energy losses that should be used for purposes of adjusting avoided cost payments to QFs.

6. Avoided Capacity Payments Prior To 2009

Q. SHOULD PACIFICORP BE REQUIRED TO MAKE AVOIDED CAPACITY PAYMENTS PRIOR TO 2009?

A. Despite the fact that PacifiCorp's IRP 2004 calls for up to 1200 MW of firm market purchases prior to 2009, the Company proposes to start making avoided capacity payments to QFs beginning in 2009.[3] UAE has suggested that PacifiCorp should make avoided capacity payments beginning in 2006 to reflect the fact that these firm market purchases are potentially avoidable resources. The Committee concurs with UAE that firm market purchases are potentially avoidable resources. Therefore, PacifiCorp cannot simply assume that QF resources will only begin providing a capacity value starting in 2009. Given that PacifiCorp has a capacity need starting in 2006, the Committee recommends that an appropriate level of avoided capacity payments should begin as early as 2006.

Q. HAS THE COMMITTEE REVIEWED THE CAPACITY PAYMENT PROPOSAL SET FORTH BY UAE WITNESS TOWNSEND AND DOES THE COMMITTEE FIND IT TO BE A REASONABLE PROPOSAL?

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[2] Typically both a transmission interconnection study and a system impact study must be performed for any generator that wants to deliver power to PacifiCorp.

[3] These firm market purchases are referred to as Front Office Transactions in the IRP 2004 report.

A. The Committee has examined UAE's capacity payment recommendation and finds it to be reasonable. Specifically, Mr. Townsend proposes a payment stream that results in the same 20-year levelized capacity payment being made to the QF, yet it begins in 2006 instead of 2009. The following table compares the avoided capacity payments using the Company's original capacity payments (payments starting in 2009), with an alternative payment stream beginning in 2006 as recommended by Mr. Townsend.

Year	PacifiCorp Payment Capacity Price $/kW-yr	UAE Proposed Spread Capacity Price $/kW-yr
2006	$0.00	$61.43
2007	$0.00	$62.67
2008	$0.00	$63.94
2009	$82.51	$65.23
2010	$84.18	$66.55
2011	$86.66	$68.50
2012	$89.20	$70.52
2013	$91.83	$72.59
2014	$94.53	$74.72
2015	$97.31	$76.92
2016	$100.17	$79.18
2017	$103.11	$81.51
2018	$106.14	$83.91
2019	$109.26	$86.37
2020	$112.48	$88.91
2021	$116.91	$92.42
2022	$121.51	$96.06
2023	$126.30	$99.84
2024	$131.28	$103.78
2025	$136.45	$107.86
20 Year Levelized Prices (Nominal) @ 7.20% Discount Rate		
$/kW	74.94	74.94

Over the 20-year life, the results show that the levelized avoided capacity payments will be identical.

7. 20-year Contract Life

Q. WHAT ARE THE PARTIES CONCERNS REGARDING THE QF CONTRACT LENGTH?

A. Some parties have expressed concerns that PacifiCorp's proposed QF contract length of 20 years is too short and should be extended to the life of QF resources (up to 35 years). The Committee believes that it is unreasonable to require PacifiCorp to enter into contractual obligations for such excessively long periods. The Public Utility Commission of Oregon ("PUCO") holds a similar view. In a recent decision by the PUCO, the contract length for QF projects was increased from five to 15 years, with an additional 5-year extension period, bringing the total contract length to 20 years.[4] In its final order the Commission opined:

> *We conclude that establishing an appropriate maximum term for standard contracts requires us to balance two goals. A primary goal in this proceeding is to accurately price QF power. We also seek, however, to ensure that QF projects that are deemed eligible to receive standard contracts have viable opportunities to enter into a standard contract. To achieve this latter goal, it is necessary to ensure that the terms of the standard contract facilitate appropriate financing for a QF project. Consequently, we agree with Staff and other parties that our fundamental objective is to establish a maximum standard contract term that enables eligible QFs to obtain adequate financing, but limits the possible divergence of standard contract rates from actual avoided costs.*

There was considerable debate over whether the appropriate length for a QF developer to be able to get project financing should be 15 or 20 years. Ultimately, the Commission determined that the evidence on contract length was inconclusive, but it appears that most of the parties were comfortable with a 20-year term.

Q. WHAT DOES THE COMMITTEE RECOMMEND REGARDING THE CONTRACT TERM?

[4] Public utility commission of Oregon, Docket UM 1129, Order No. 05-584, May 13, 2005, Staff's Investigation Relating to Electric Utility Purchases From Qualifying Facilities.

A. Twenty-year contract terms have allowed developers to get financing for their projects. Therefore, we recommend that the contract term be limited to 20 years.

8. Wind Integration Costs

Q. PLEASE DISCUSS THE COMMITTEE POSITION REGARDING WIND INTEGRATION COSTS.

A. A utility incurs costs to integrate wind resources into its system. These wind integration costs should be treated as a reduction in payments to wind QFs. In my direct testimony, I raised the possibility of more accurately determining these costs within PacifiCorp's production cost model. While PacifiCorp believes there may be a way to model wind integration cost impacts within GRID modeling, it has yet to test this modeling approach. Therefore, the Committee recommends: (1) PacifiCorp's estimate of $4.64/MWh should be used on an interim basis to lower payments to wind QFs for integration costs; and (2) the Commission should order PacifiCorp to conduct a more detailed analysis of wind integration costs to determine if those costs could be more accurately captured within GRID.

9. Wind Resource Payments

Q. HAS THE COMMITTEE RECONSIDERED ITS WIND QF CAPACITY PAYMENT POSITION?

A. From reviewing other parties' testimony and through discussions held during technical conferences, the Committee has reconsidered its position regarding wind QF capacity payments. We now recommend that special treatment should be afforded wind QF resources that supply PacifiCorp with capacity that helps bring PacifiCorp's total wind capacity up to the limits specified in PacifiCorp's IRP 2004, 200 MW per year and 1,400 MW in total. Once those limits are reached, then the Committee's recommendation in its direct testimony should be relied upon with regard to the avoided capacity payment.

Q. PLEASE DISCUSS WHY WIND RESOURCES THAT MEET THESE CONDITIONS SHOULD BE AFFORDED THIS SPECIAL TREATMENT?

A. PacifiCorp determined that it would be economic to add approximately 200 MW of wind per year, and up to 1,400 MW total. As part of implementing its IRP action plan, PacifiCorp has signed some wind contracts and is working to add more wind resources to its system. In meeting the goals that the Company established in IRP 2004, it makes no difference whether a wind resource is acquired through an RFP solicitation or through a QF contract. Customers should be indifferent to paying, for example, $40/MWh to a bidder that supplies wind energy or to a QF that supplies a similar wind energy product.

Q. WHAT AVOIDED COST PAYMENT DOES THE COMMITTEE PROPOSE FOR QFs THAT FALL WITHIN THE LIMIT IT PROPOSES?

A. The Committee believes that it would be fair to pay those QFs an amount equal to the lessor of the levelized energy cost assumed in the IRP, and the levelized energy cost from the first winning wind bidder in the

Company's most recent bid solicitation. This would establish the lowest cost that the Company could acquire wind energy for if it was not obligated to purchase that energy from a QF wind energy supplier. Dr. Collins provided an example of the levelized energy cost of a wind resource as Exhibit RSC-1 based on data assumptions that he obtained from IRP 2004. Assuming all of the calculations are correct, the levelized cost of energy is $65.53/MWh.

Q. WHY DID YOU SAY "ASSUMING ALL OF THE CALCULATIONS ARE CORRECT"?

A. $65.53/MWh appears extremely high for the levelized cost of a wind resource. For example, Northwestern Energy in Montana recently received Commission approval for a 150 MW wind power purchase from the Judith Gap Wind Farm project in Montana. According to the Montana Commission's Order approving the contract, the 20-year annual average price is $31.71/MWh.[5] This price is less than half the price recommended by Dr. Collins.

Q. HAS THE COMMITTEE COMPUTED THE 20-YEAR LEVELIZED COST USING THE ASSUMPTIONS INCLUDED IN PACIFICORP'S IRP 2004?

A. Yes it has. The Committee reviewed Dr. Collins' calculation and found a few items that should be revised. Committee Rebuttal Exhibit 1 is a calculation of the 20-year levelized cost in $/MWH based on IRP 2004 data assumptions. Most of the data assumptions were derived from

Tables C.27 and C.28 in PacifiCorp's IRP 2004 report. This analysis is similar to Dr. Collins' analysis, with the following three differences:

- The Committee did not include a transmission capacity cost payment because a transmission network study (as recommended earlier in my testimony) is required to determine the value of such payment.
- We used a 35% capacity factor assumption for a wind resource, as was included on Table C.38 of the IRP 2004 report. Dr. Collins, whether intentionally or unintentionally, used a 32% capacity factor assumption.
- The Committee corrected what it believes is improper treatment of the production tax credit. Dr. Collins assumes that the production tax credit would exist for the entire 20 years. However, the production tax credit only applies for the first 10 years of the life of a wind resource. The Committee also believes that the production tax credit must be grossed up for taxes. While a more accurate value for PacifiCorp's effective tax rate should be used, the Committee used 40% for illustrative purposes.

Q. WHAT DO THE RESULTS OF THE COMMITTEE'S ANALYSIS SHOW?

A. The Committee's revisions to Dr. Collins' analysis produce a levelized cost of wind energy of $46.05/MWh. While this is still higher than the cost of the Judith Gap project, it is substantially below the estimate that Dr. Collins presented.

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[5] Public Service Commission of the State of Montana, Docket D2005.2.14, Final Order No.

Q. ARE YOU SUGGESTING THAT THE COMMITTEE'S ESTIMATE SHOULD BE THE VALUE USED FOR MAKING PAYMENTS TO WIND QFS?

A. The Committee provided this calculation simply for illustrative purposes and to demonstrate that the avoided cost payments recommend by wind resource proponents are excessive. The Committee recommends that this methodology be used for wind resources that fall within the 200 MW per year/1,400 MW total limit, and recommends that the Company should verify that these calculations are accurate, particularly the wind power production tax credit treatment.

Q. DOES THIS CONCLUDE YOUR PREFILED DIRECT TESTIMONY?

A. Yes, it does.